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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,439	03/23/2004	Noritaka Takahata	VX042605	1796

21369 7590 10/28/2008

POSZ LAW GROUP, PLC
12040 SOUTH LAKES DR.
SUITE 101
RESTON, VA 20191

EXAMINER	
ROE, JESSEE RANDALL	
ART UNIT	PAPER NUMBER
1793	

MAIL DATE	DELIVERY MODE
10/28/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/806,439	TAKAHATA ET AL.	
	Examiner	Art Unit	
	Jessee Roe	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5,7 and 8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-5 and 7-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 26 August 2008 has been entered.

Status of the Claims

Claims 1, 3-5 and 7-8 are pending wherein claim 4 is amended and claims 2 and 6 are canceled.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garcia et al. (US 4,140,555).

In regards to claim 1, Garcia et al. ('555) discloses a nickel-based heat resistant alloy (col. 1, lines 7-18 and col. 1, line 59 – col. 2, line 25). A

comparison of the alloy disclosed by Garcia et al. (‘555) with that of the instant invention is shown in the table below.

Element	**From Instant Claims** (weight percent)	**Garcia et al. (‘555)** (weight percent)	**Overlap** (weight percent)
C	0.10-0.50	0.01-0.25	0.10-0.25
Si	0-1.0	0	0
Mn	0-1.0	0	0
Cr	5.9-10.0	7.0-25.0	7.0-10.0
Al	2.0-8.0	0.2-7.0	2.0-7.0
Co	0-15.0	0-25.0	0-15.0
W	8.0-16.0	0-13.0	8.0-13.0
Ta	2.0-8.0	0-6.0	2.0-6.0
Ti	0-3.0	0.2-6.0	0.2-3.0
Zr	0.001-0.20	0-0.2	0.001-0.20
B	0.005-0.30	0-0.15	0.005-0.15
Ni	balance	balance	balance

The Examiner notes that the composition of the nickel-based alloy of Garcia et al. (‘555) overlaps the composition of the instant invention, which would be a prima facie case of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the desired amounts of carbon, chromium, aluminum, cobalt, tungsten, tantalum, titanium, zirconium, and boron from that of Garcia et al. (‘555) because Garcia et al. (‘555) disclose the same utility (heat resistant nickel-based alloys) throughout the disclosed ranges.

In regards to the claim language, the phrase “up to” indicates that the presence of that particular element would be optional. In this case silicon, manganese, cobalt, and titanium would all be optional elements according to claim 1.

In regards to the language “consists of” as recited in claim 1, Garcia et al.

('555) discloses the use of a carbide shape controller selected from 0.022 to 0.15 weight percent magnesium, 0.005 to 0.10 weight percent calcium, and mixtures thereof (col. 1, lines 30-55). Garcia et al. ('555) further discloses using magnesium as a deoxidizer and desulfurizer; using lime (source of calcium) to reduce sulfur content (col. 2, lines 63-69); and that the grain would be more coarse without the carbide shape controller (col. 4, lines 6-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to omit the calcium and/or magnesium from the nickel-base alloy, as disclosed by Garcia et al. ('555) where deoxidation, desulfurization, and fine grain size would not be required or desired. MPEP 2144.04(II)(a).

Still regarding claim 1, Garcia et al. ('555) discloses the presence of carbides in the nickel-based alloy but is silent to the area percentage thereof (col. 4, lines 6-12). However, the Examiner asserts that Garcia et al. ('555) would have the same amount of carbides because Garcia discloses substantially the same amount of carbon (0.01 - 0.25 weight percent). Garcia et al. ('555) is also silent with respect to the area percentage of γ/γ' eutectoid. However, the Examiner asserts that the nickel-base alloys disclosed by Garcia et al. ('555) \ would inherently have the claimed eutectoid area percentage and the claimed carbide percentage because the alloys have substantially the same composition and the substantially the same processing (casting). MPEP 2112.01 I.

With respect to the formula in claim 1, it is well settled that there is no

invention in the discovery of a general formula if it covers a composition described in the prior art, In re Cooper and Foley 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, Taklatwalla v. Marburg, 620 O.G. 685, 1949 C.D. 77, and In re Pilling, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those of ordinary skill in the art. In re Austin, et al., 149 USPQ 685, 688. It would have been obvious to one of ordinary skill in the art to select the desired amounts of nickel, chromium, titanium, aluminum, cobalt, tantalum, tungsten, and zirconium from the ranges disclosed by Garcia et al. ('555) because Garcia et al. ('555) discloses the same utility (heat resistant nickel-based alloys) throughout the disclosed ranges.

In regards to claim 4, Garcia et al. ('555) discloses a nickel-based heat resistant alloy (col. 1, lines 7-18 and col. 1, line 59 – col. 2, line 51). A comparison of the alloy disclosed by Garcia et al. ('555) with that of the instant invention is shown in the table below.

Element	**From Instant Claims** (weight percent)	**Garcia et al. ('555)** (weight percent)	**Overlap** (weight percent)
C	0.10-0.50	0.01-0.25	0.10-0.25
Si	0-1.0	0	0
Mn	0-1.0	0	0
Cr	5.9-10.0	7.0-25.0	7.0-10.0
Al	2.0-8.0	0.2-7.0	2.0-7.0
Co	0-15.0	0-25.0	0-15.0
W	8.0-16.0	0-13.0	8.0-13.0
Ta	2.0-8.0	0-6.0	2.0-6.0
Ti	0-3.0	0.2-6.0	0.2-3.0
Zr	0.001-0.20	0-0.2	0.001-0.20
B	0.005-0.30	0-0.15	0.005-0.15
Ca	0-0.01	0.005-0.1	0.005-0.01
Ni	balance	balance	balance

The Examiner notes that the composition of the nickel-based alloy of Garcia et al. (‘555) overlaps the composition of the instant invention, which would be a prima facie case of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the desired amounts of carbon, chromium, aluminum, cobalt, tungsten, tantalum, titanium, zirconium, boron, and calcium from that of Garcia et al. (‘555) because Garcia et al. (‘555) disclose the same utility (heat resistant nickel-based alloys) throughout the disclosed ranges.

In regards to the claim language, the phrase “up to” indicates that the presence of that particular element would be optional. In this case silicon, manganese, cobalt, and titanium would all be optional elements according to claim 2.

Still regarding claim 4, Garcia et al. ('555) discloses the presence of carbides in the nickel-based alloy but is silent to the area percentage thereof (col. 4, lines 6-12). However, the Examiner asserts that Garcia et al. (‘555) would have the same amount of carbides because Garcia discloses substantially the same amount of carbon (0.01 - 0.25 weight percent). Garcia et al. (‘555) is also silent with respect to the area percentage of γ/γ’ eutectoid. However, the Examiner asserts that the nickel-base alloys disclosed by Garcia et al. (‘555) \ would inherently have the claimed eutectoid area percentage and the claimed carbide percentage because the alloys have substantially the same composition and the substantially the same processing (casting). MPEP 2112.01 I.

With respect to the formula claim 4, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, In re Cooper and Foley 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, Taklatwalla v. Marburg, 620 O.G. 685, 1949 C.D. 77, and In re Pilling, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those of ordinary skill in the art. In re Austin, et al., 149 USPQ 685, 688. It would have been obvious to one of ordinary skill in the art to select the desired amounts of nickel, chromium, titanium, aluminum, cobalt, tantalum, tungsten, and zirconium from the ranges disclosed by Garcia et al. ('555) because Garcia et al. ('555) discloses the same utility (heat resistant nickel-based alloys) throughout the disclosed ranges.

Still regarding claim 4 and in regards to claim 3, Garcia et al. ('555) does not necessitate the addition of iron copper, sulfur, and phosphorus. Also, Garcia et al. ('555) do not necessitate the presence of vanadium or molybdenum because Garcia et al. ('555) discloses 0 to 1.5 weight percent vanadium and 0 to 10 weight percent molybdenum (col. 1, line 58 - col. 2, line 25).

In regards to claims 5 and 7-8, Garcia et al. ('555) discloses making articles such as turbine wheels (col. 1, lines 7-18 and col. 4, lines 39-55).

Still regarding claims 5 and 7-8, the Examiner considers the recitation "for automobile engines" an intended use of the turbine wheel which would not further limit the structure of the turbine wheel. MPEP 2111.02 II.

Response to Arguments

Applicant's arguments filed 26 August 2008 have been fully considered but they are not persuasive.

First, the Applicant primarily argues the lower limit of 1% for the γ/γ' eutectoid area percentage is explained as necessary for castability; an upper limit of 15% γ/γ'-eutectoid area percentage is explained as necessary to prevent a beginning point of fracture, which reduces the durability of the product; and refers the Examiner to page 10, line 21 to page 11, line 1 of the specification.

In response, the Examiner notes that the alloy disclosed by Garcia et al. ('555) is castable (col. 4, line 6). However, the Examiner also notes that in the excerpt from page 10, line 21 to page 11, line 1, the section recites "In case where the area percentage is less than 1%, voids may occur at the last stage of casting…On the other hand, in case where the area percentage exceeds 15%, the eutectoid may become the starting points of fracture" (Emphasis added). The fact an event may take place does not necessarily mean that it will take place. Once a reference teaching product appearing to be substantially identical is made the basis of a rejection, and the examiner presents evidence or reasoning tending to show inherency, the burden shifts to the applicant to show an unobvious difference. "[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the

PTO's inability to manufacture products or to obtain and compare prior art products." *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)), see MPEP 2112. Applicant has not clearly shown an unobvious difference between the instant invention and the prior art's product.

Second, the Applicant primarily argues that Table 5 on page 17 of the instant specification provides data to support the statements in the specification relating to the area percentage of γ/γ'-eutectoid of 1-15%; the Applicants particularly refer to Example Nos. 8A and 9A of Table 5 that show data for the area percentage of γ/γ'-eutectoid for more than 15% and less than 1% having "many casting defects occurred" to support the statements made on page 10, line 21 to page 11, line 1 of the specification; and Example 3A in Table 5 shows that the creep property data are significantly outside the ranges shown for Example Nos. 8 and 9 that represent area percentages γ/γ'-eutectoid of 1-15% as presently claimed.

In response, the Examiner notes that Example E of Table 4 has an atomic % of Ti+Al+Ta of 12.15, which would be within 12.0-15.5 as instantly claimed; a γ/γ'-eutectoid area percentage of 1.9, which would be within 1-15% as instantly claimed; a carbide area percentage of 4.0, which would be within 1-10%, as instantly claimed; and a M-value of 96, which would be within 93-98 as instantly claimed. However, the Creep Property for Example E of Table 4 is only 34 hours. Therefore, the Creep Property of 36 hours, as in Example 8A of Table 5 (γ/γ'-eutectoid area percentage of 18.1%), would not be unexpectedly low with respect

to the to the Creep Property of 34 hours, as in Example E of Table 4 (γ/γ'-eutectoid area percentage of 1.9%).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessee Roe whose telephone number is (571) 272-5938. The examiner can normally be reached on Monday-Friday 7:30 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Roy V. King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John P. Sheehan/
Primary Examiner, Art Unit 1793

JR